

# KELLY BROWNE & SPURR CONSULTING ENGINEERS

P.O. BOX 23, ROTORUA. PHONE 85-394



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JOB REF: 6961

10 OCT 1989

DATE: 17/10/89

BLDG. DIV.

SHEET 2 OF 2.

KITCHEN / DINING ROOM - 200 x 100

Span = 2.8 m

$$W_{dead} = 0.32 \times 1.6 + 0.4 + 0.3 + 0.43 \times 1.3 = 1.20 \text{ kN/m}$$

$$W_{live} = 0.25 (1.6 + 1.3) = 0.73 \text{ kN/m}$$

Stress :  $A = D + L = 1.93 \text{ kN/m}$

Def'n :  $A = 2D + L = 3.13 \text{ kN/m}$  long term.

$$M_{max} = \frac{1.93 \times 2.8^2}{8} = 1.9 \text{ kN.m}$$

$$f_b = \frac{1.9 \times 6 \times 10^6}{94 \times 194} = 3.2 \text{ MPa}$$

$$f_b = 1.35 \times 6 = 8.1 \text{ MPa} \quad \text{OK}$$

$$\Delta_{max} = S = \frac{3.13 \times 2800^4 \times 12}{384 \times 8000 \times 94 \times 194^3} = 5.5 \text{ mm} = \text{Span} \quad \text{OK}$$

*[Signature]*  
D.W. KERR REG. ENGR  
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TIMBERPAC HOMES.

PLAN NO. A4A.

TIMBER BEAMS

SHEET 1 OF 2

LOADINGS:	Roof Dead load	45° Pitch	0.43 kPa
		15° Pitch	0.32 kPa
	Roof Live load		0.25 kPa
	Walls		0.4 kPa
	Floor Dead load		0.4 kPa
	Floor Live load		1.5 kPa

LIVING ROOM - 430 x 90 LAMINATED.

Span = 5.1 m.

$$W_{dead} = 0.4 \times 2.1 + 0.32 \times 0.7 + 0.4 \times 2.4 = 2.02 \text{ kN/m}$$

$$W_{live} = 1.5 \times 2.1 = 3.15 \text{ kN/m}$$

$$\text{Stress: } A \cdot D \cdot L = 5.17 \text{ kN/m}$$

$$\text{Def'n: } A \cdot I \cdot S \cdot D \cdot L = 6.18 \text{ kN/m} \quad \text{long term laminated timber}$$

$$M_{max} = \frac{5.17 \times 5.1^2}{8} = 16.81 \text{ kN.m}$$

$$f_b = \frac{16.81 \times 6 \times 10^6}{88 \times 430^2} = 6.2 \text{ MPa}$$

$$f_b = 1.35 \times 8.2 = 11 \text{ MPa} \quad \text{OK}$$

$$\Delta_{max} = \frac{5 \times 6.18 \times 5100^4 \times 12}{384 \times 9000 \times 88 \times 430^3} = 10.4 \text{ mm} \approx \text{Span} \quad \text{OK}$$

$$\frac{10.4}{492}$$